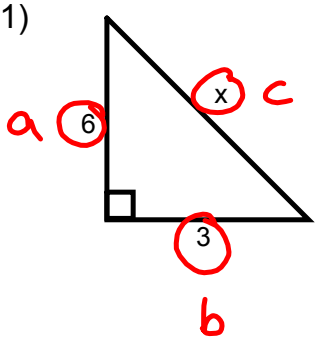
1/12/16 "You miss 100% of the shots that you dont take." - Wayne Gretzky

HW: "Properties of Complex Numbers" w/s
Test 3 on Friday 1/21

AIM: What is the magnitude of a complex number?

Warm Up:

1)



Find the value of x.

Pythagorean Theorem

$a^2 + b^2 = c^2$

$6^2 + 3^2 = x^2$

$36 + 9 = x^2$

$45 = x^2$

$\sqrt{45} = x$

$\sqrt{9}\ \sqrt{5}$

$3\sqrt{5} = x$

The Magnitude of a complex number is the distance that it is from the origin. It can also be referred to as the absolute value.

Complex number

$$z = a + bi$$

Magnitude:

$$|z| = \sqrt{a^2 + b^2}$$

$z = 2 + 4i$

a b

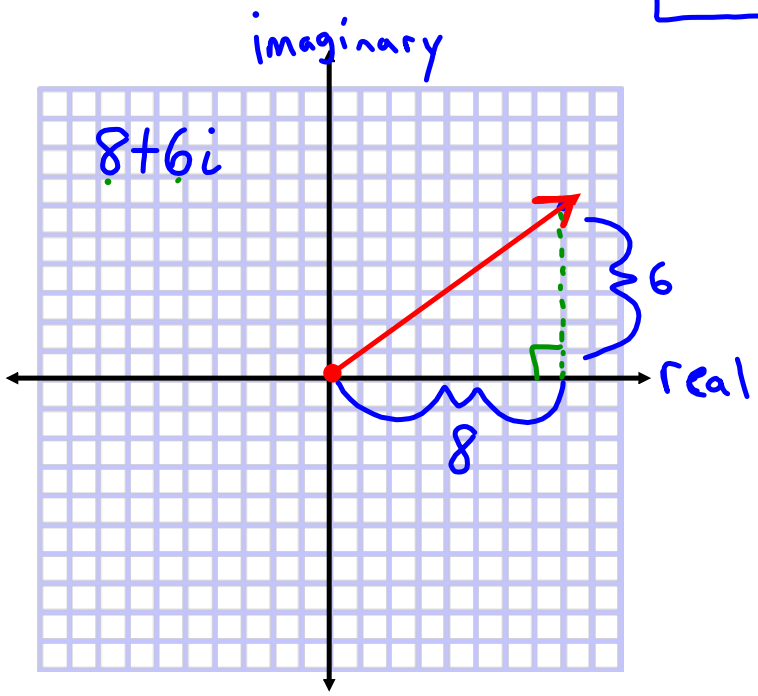
$|z| = \sqrt{2^2 + 4^2}$

$= \sqrt{4+16} = \sqrt{20} = \boxed{2\sqrt{5}}$

2) Graph

8 + 6*i*

real imaginary



3) What is the magnitude of -2 + 3*i* ?

$|-2+3i| = \sqrt{(-2)^2+3^2}$

$= \sqrt{4+9}$

$= \sqrt{13}$

a

b

4) What is the absolute value of -2 + 3*i* ?

Same as #3

$\sqrt{13}$

5) Given z = -2 + 3*i* , find $|z|$

Same as #3 and #4

$|z| = \sqrt{13}$

magnitude

absolute value

$|z|$

1) $|7-1i| = \sqrt{7^2+(-1)^2}$

$a = 7$, $b = -1$

$= \sqrt{49+1}$

$= \sqrt{50}$

$\sqrt{25}\sqrt{2}$

$5\sqrt{2}$